RP—5001

With Input/Output Interface

OPERATION AND MAINTENANCE MANUAL

OKUMA

OKUMA MACHINERY WORKS LTD.

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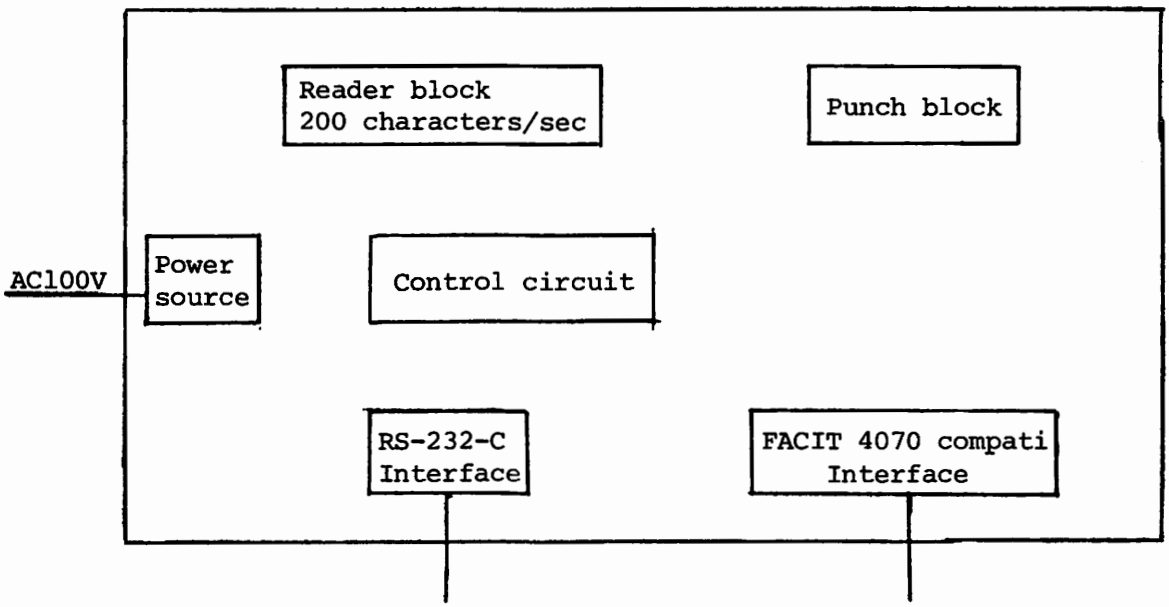
1. Composition

RP-5001



2. Specifications

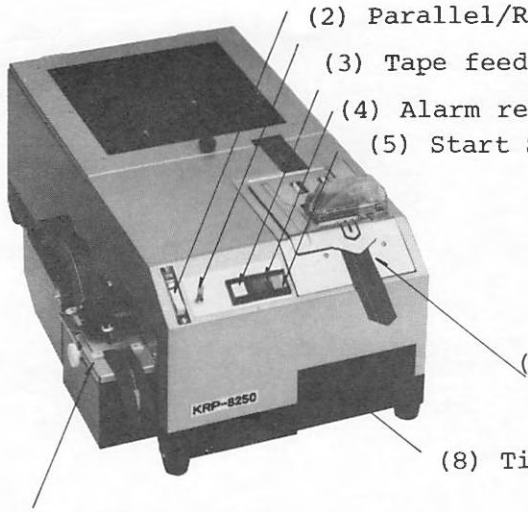
(1)	Puching speed	50 chrs/sec
(2)	Reading speed	200 chrs/sec
(3)	Interface	Parallel 8BIT (FACIT 4070), RS232C
(4)	Baudrate	110∿4800
(5)	Voltage of power source	AC100V 50/60HZ
(6)	Circuit used	Micro-computer
(7)	Weight	approx. 10Kg
(8)	Punching method	Motor-drive synchronous trigger method
(9)	Reading method	Photo-electric method
(10)	Power consumption	60W
(12)	Outside dimension	290x455x190
(13)	Working condition	Working temp. 5∿40 degree C Humidity 20%∿80%

3. Consumables

Paper tape	8 units:	Standard tape
	Thickness:	0.08∿0.11mm
	Tape reel diameter:	I.D. 60mm O.D. max. 200mm

4. Parts name and their function

4.1



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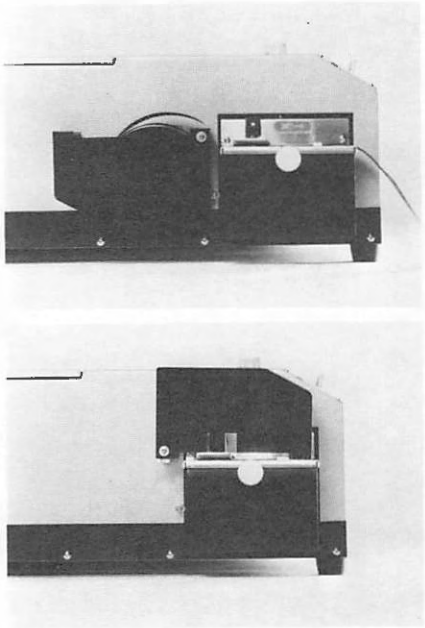

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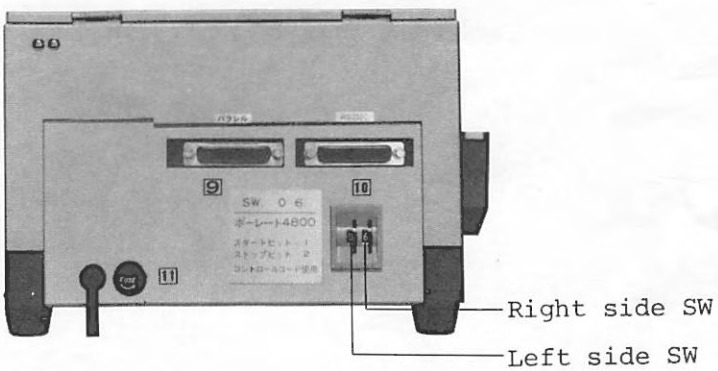


Accessories list

* Operation manual	One volume
* Connection cord	One (3m)
* Paper tape	One reel (8 units use)
* Fuse	One (5A)
* Cover	One (tape reader cover)

(1) Power switch ..... Lamp is lighted by power ON, turning into workable state.

(2) Parallel/RS232C .... Selection switch for in- and output selection switch interphase. Either PARALLEL (4070) or SERIAL (RS232C) can be selected.

(3) Tape feeding ..... Switch for paper tape feeding.

(4) Alarm reset ..... Lamp is lighted when alarm occurs. Alarm is released by 2nd push, while acts as stop button at the time of tape copying.

(5) Start ..... Reading is stopped.

(6) Punch ..... Punching of paper tape starts.

(7) Tape reader ..... Reading of paper tape starts.

(8) Tip box ..... Box for punched paper tip

(9) Parallel ..... FACIT 4070 interphase connector

(10) RS232C ..... RS232C interphase connector

(11) Fuse ..... In case that lamp is not lighted and no actuation is observed, checking of the fuse is requested.

(12) Outside switch ..... Explanation at Chapter 10 be referred.

5. Loading of paper tape

(1) By pressing down the tape guide lever, tape guide is lifted.

(2) To ensure a good contact of tape on reading surface, it shall be sufficiently inserted to hit the innermost point.

(3) Seen from above, tape is inserted as shown in Fig. 1.

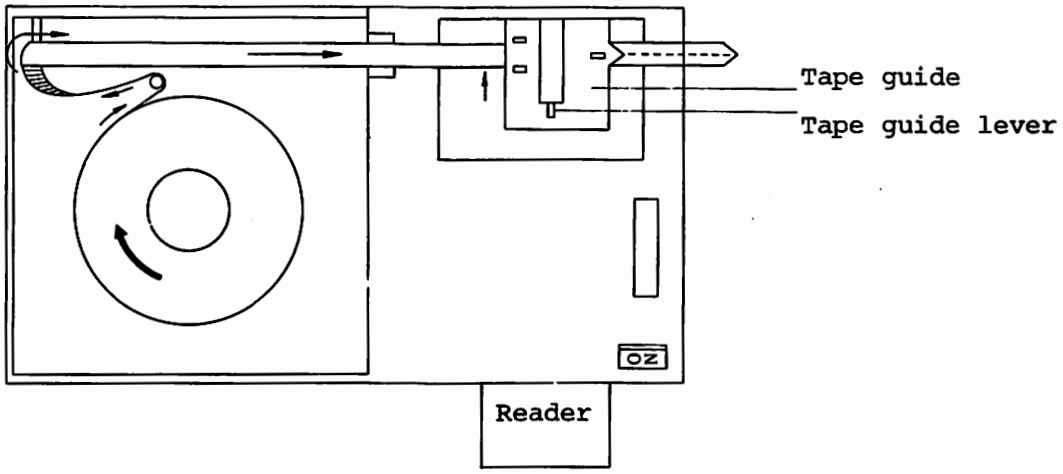


Fig. 1

(4) By downing the tape guide, tape loading is finished.

Notices regarding paper tape:

Your good attention for the following description is necessary to prevent misreading, which is caused by careless tape preparation or handling.

Tape specification

Standard is electronic computer-use
8 units punching tape based on EIA-RS-224A
or JIS-B6311.
Color must be black or gray.

6. Operation method of punch out (data output)

Operation 1. Turn interface selection switch to SERIAL (RS232C).

Operation 2. Press down the tape release button inserting approximately 20 cm of tape.

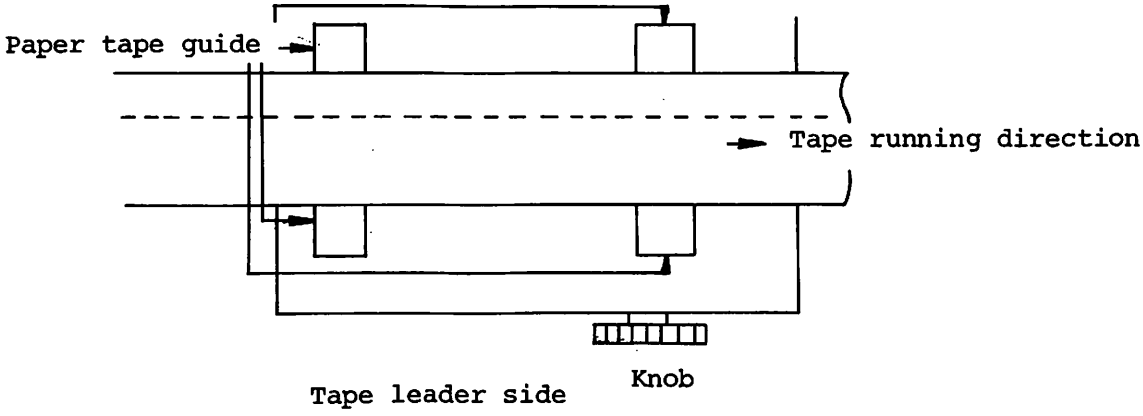
Operation 3. Operate the key from the control device side in order to make punch out signal.

- Complete -

7. Loading method of paper tape leader

(1) By pressing down the lever of tape guide, it lifts.

(2) To ensure a good contact of tape on the reading surface, it shall be sufficiently inserted to hit the innermost point.



(3) Tape is loaded as Fig. 1 as seen above.

(4) Tape loading is completed by downing the tape guide.

8. Operation method of tape input (data input)

Operation 1. Turn interface selection switch to RS232C.

Operation 2. Set the program tape on the reading portion. Confirm if tape proceeds properly by turning white knob.

Operation 3. Operate the key from the control device to make the signal out of the tape input.

Note 1) In case of punch out and tape input, please operate paying attention to cable baudrate.

Note 2) The present reader/puncher is also equipped with FACIT 4070 compatible parallel interface.

When connection to NC device is required, connector, an accessory to NC device, shall be used upon confirming punch out specification of NC device.

9. Operation method to make a copy of tape

Operation 1. Select a PARALLEL side of PARALLEL/RS232C selection switch.

Operation 2. Make power source switch ON.

Operation 3. Set a program tape on reading portion and confirm the proper tape motion by turning white knob.

Operation 4. Press down the start button. (Copying starts.)

Note: When stopping necessary during copying, press down stop button. (Common to alarm reset button)

10. Explanation on external switches

Baudrate 4800, set at stopbit 2 (at delivery)

NO	Left-side switch						
	DC CODE existent	DC CODE non-existent	STOP BIT 1	STOP BIT 2	ISO/EIA *1	ISO/ASK *2	PUNCH TEST
0	o			o			
1			(not used yet)				
2	o			o	o		
3	o			o		o	
4		o		o			
5			(not used yet)				
6			(not used yet)				
7							o
8		o	o				
9			(not used yet)				

Note: Switch selection shall be made at power source OFF. Switch selection at power source ON is useless.

Right-side switch			
NO	Function	NO	Function
0	not used yet	5	2400
1	110	6	4800
2	300	7	not used yet
3	600	8	not used yet
4	1200	9	not used yet

*1 Code is exchanged with the input to tape from outside. Code is exchanged with the input to tape to outside.

(Example) ISO input → EIA
EIA input → ISO
ISO output → EIA
EIA output → ISO

*2 Code is exchanged with the input to tape from outside. Code is exchanged with the input to tape to outside.

(Example) ISO input → ASCII
ASCII input → ISO
ISO output → ASCII
ASCII output → ASCII

11. Explanation on control code

This is a control powered from NC, while sign and function are as follows.

(Common to EIA/ISO) o Punch hole

Code name	Performance	Code 8	7	6	5	4	3	2	1
DC 1	Tape reader start				o				o
DC 2	Tape punch on				o			o	
DC 3	Tape reader stop	o			o			o	o
DC 4	Tape punch off				o		o		

Note: In case that DC code is not used in control, external left switch shall be fixed at "4".

12. Connection interface

(1) Serial RS232C

Pin No.	Signal
1	SD
2	DTR
5	RS
7	SG
10	RD
11	DSR
12	CTS

(2) Parallel 4070 (FACIT)

Pin No.	Signal	Data
1	CH1	IF 1
2	CH2	IF 2
3	CH3	IF 3
4	CH4	IF 4
5	CH5	IF 5
6	CH6	IF 6
7	CH7	IF 7
8	CH8	IF 8
11	PI	Feed order
12	PR	Punch ready
20	0(V) reception	
21	0(V) reception	
24	5(V) reception	
25	0(V) reception	

IF1∿8 PI pulse width min. (100 us)

"1" + 2. 2 → +12V

"0" - 12 → + 1.5V

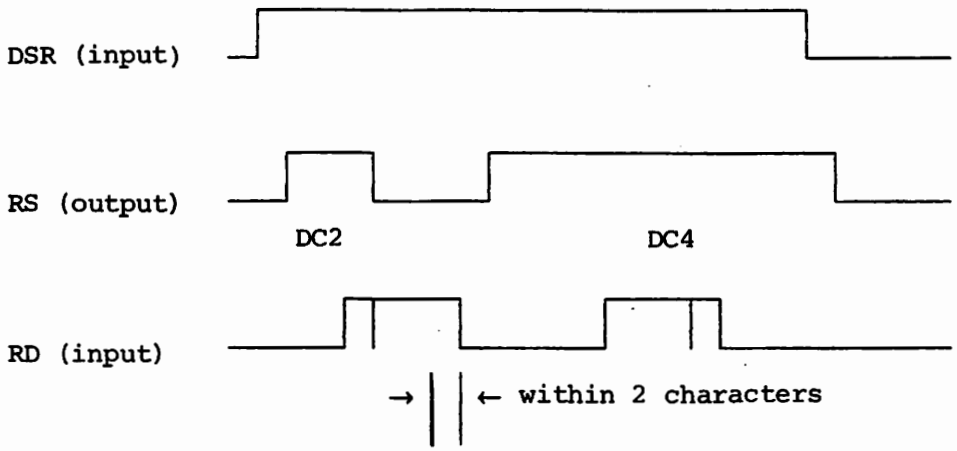
PR

"1" + 4.5V

"0" + 0.3V

13. Reception (punch out), transmission (tape reading) of serial interface

(1) Punch out

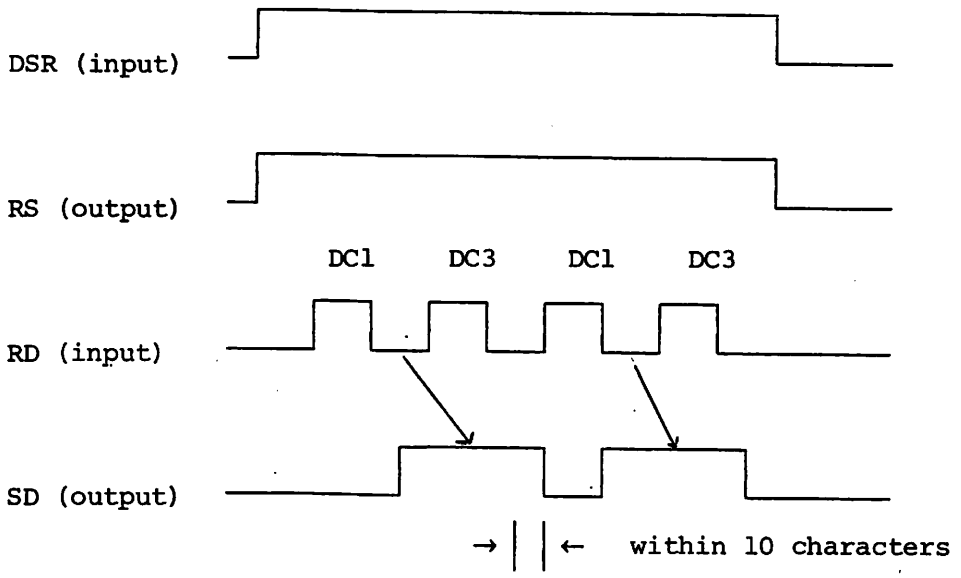


1 Waiting DSR signal ON from control device.
2 DSR signal ON from control device detected and RS signal to control device sent.
3 With reception from DC2 code from control device, punch turns ON, and receiving punch data, starts punching.
4 When punch rate is late during reception of signal from control device, the present puncher makes RS signal OFF. In this case, control device stops sending data including characters being sent at present time within 2 characters.
5 When punching finishes, the present puncher makes RS signal ON. In this case, the control device sends data in succession to former data.
6 With reception of DC4 code from control device, punch turns OFF stopping punching.
7 With DSR signal from control device OFF, RS signal of the present puncher makes OFF.
8 With DSR signal from control device OFF, "release" becomes effective. Tape starts to run by pushing

tape release button.

Note: Above is an explanation in case that external switch is 06.

(2) Encoding to NC memory



Note: Signal name is a nomenclature of NC connector.

1 Waiting DSR signal ON from control device.

2 DSR signal ON from control device detected and RS signal to control device sent.

3 a. With reception of DC1 code from control device, starts reading and sends data.

b. With pressing down of the start button of the device, starts sending data. (Case of copying)

4 With reception of DC3 code from control device, reading is stopped and data sending is stopped.

5 a. With the reception of DC3 code thru completion of reading from control device, data transmission is stopped.

b. By pressing down the stop button of the present device, reading and data are stopped. (Case of copying)

6 Tape out during reading leads to stoppage of reading and data transmission.

7 With DSR signal from control device OFF, RS signal of puncher of the present device is made OFF.

Note: Above is an explanation in case that external switch is 06.

14. Causes of alarm

1. Unsuitable Baudrate
2. Poor quality paper tape (readerlock)
3. Poorly proposed data (Data not meeting the specification)

15. Check of punching

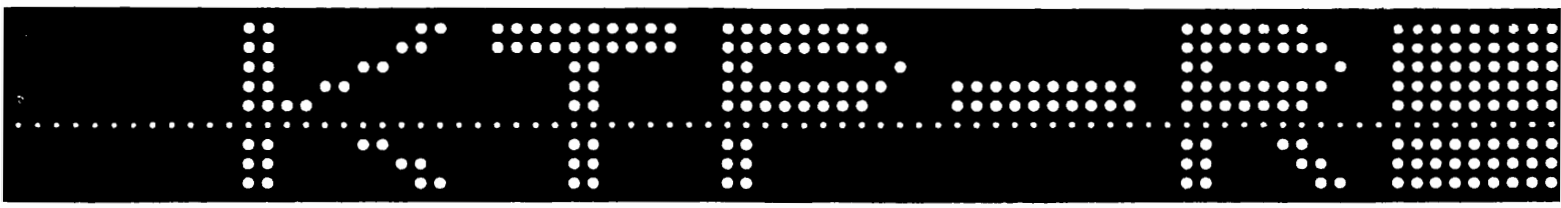
When you notice such punching irregularities as punching miss, punching skip, please observe punch test as described below.

Operation procedure

1. Set the left-side external switch to 7, and the right-side one to 0 ∿ 9 (any position). (See 4.3 on the page 2)
2. PARALLEL/RS232C selection switch made PARALLEL.
3. Power switch made ON.

4. Tape feeding switch made ON.

   Above operation assures an automatic punching on the paper tape.



Note: When finished, please made the power switch OFF, and reset the back left switch.

16. Alarm removal

In case that alarm lamp is lighted by some causes, alarm lamp is lighted by pressing down the alarm reset button.

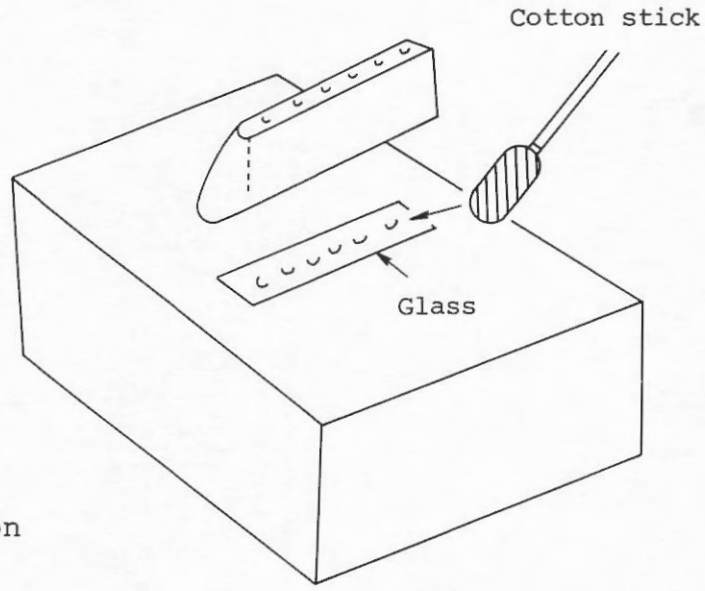
17. Explanation on maintenance

(1) Reader portion

Cleaning of illuminated area

Frequency

one time/monthly one time



(2) Punching portion

weekly check of punched tip